

**UTILITY PATENT APPLICATION TRANSMITTAL**  
**(Large Entity)***(Only for new nonprovisional applications under 37 CFR 1.53(b))*

Docket No.

00-069

Total Pages in this Submission

48

**TO THE ASSISTANT COMMISSIONER FOR PATENTS**

Box Patent Application

Washington, D.C. 20231

Transmitted herewith for filing under 35 U.S.C. 111(a) and 37 C.F.R. 1.53(b) is a new utility patent application for an invention entitled:

**SYSTEM FOR VENDING PHYSICAL AND INFORMATION ITEMS**

and invented by:

**Jay S. WALKER; Daniel E. TEDESCO**If a **CONTINUATION APPLICATION**, check appropriate box and supply the requisite information:☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No.: \_\_\_\_\_

Which is a:

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Enclosed are:

**Application Elements**

1. ☒ Filing fee as calculated and transmitted as described below
2. ☒ Specification having 28 pages and including the following:
  - a. ☒ Descriptive Title of the Invention
  - b. ☒ Cross References to Related Applications *(if applicable)*
  - c. ☐ Statement Regarding Federally-sponsored Research/Development *(if applicable)*
  - d. ☐ Reference to Microfiche Appendix *(if applicable)*
  - e. ☒ Background of the Invention
  - f. ☒ Brief Summary of the Invention
  - g. ☒ Brief Description of the Drawings *(if drawings filed)*
  - h. ☒ Detailed Description
  - i. ☒ Claim(s) as Classified Below
  - j. ☒ Abstract of the Disclosure

# UTILITY PATENT APPLICATION TRANSMITTAL (Large Entity)

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## Application Elements (Continued)

3. ☒ Drawing(s) (when necessary as prescribed by 35 USC 113)
- a. ☒ Formal                      Number of Sheets      9 (Figs. 1-9)
- b. ☐ Informal                      Number of Sheets      \_\_\_\_\_
4. ☒ Oath or Declaration
- a. ☒ Newly executed (original or copy)      ☐ Unexecuted
- b. ☐ Copy from a prior application (37 CFR 1.63(d)) (for continuation/divisional application only)
- c. ☒ With Power of Attorney      ☐ Without Power of Attorney
- d. ☐ DELETION OF INVENTOR(S)  
Signed statement attached deleting inventor(s) named in the prior application,  
see 37 C.F.R. 1.63(d)(2) and 1.33(b).
5. ☐ Incorporation By Reference (usable if Box 4b is checked)  
The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under  
Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby  
incorporated by reference therein.
6. ☐ Computer Program in Microfiche (Appendix)
7. ☐ Nucleotide and/or Amino Acid Sequence Submission (if applicable, all must be included)
- a. ☐ Paper Copy
- b. ☐ Computer Readable Copy (identical to computer copy)
- c. ☐ Statement Verifying Identical Paper and Computer Readable Copy

## Accompanying Application Parts

8. ☒ Assignment Papers (cover sheet & document(s))
9. ☐ 37 CFR 3.73(B) Statement (when there is an assignee)
10. ☐ English Translation Document (if applicable)
11. ☒ Information Disclosure Statement/PTO-1449      ☒ Copies of IDS Citations
12. ☐ Preliminary Amendment
13. ☒ Acknowledgment postcard
14. ☒ Certificate of Mailing
- ☐ First Class      ☒ Express Mail (Specify Label No.): EL645357519US

# UTILITY PATENT APPLICATION TRANSMITTAL (Large Entity)

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## Accompanying Application Parts (Continued)

15. ☐ Certified Copy of Priority Document(s) (if foreign priority is claimed)
16. ☒ Additional Enclosures (please identify below):

Acknowledgment Postcard

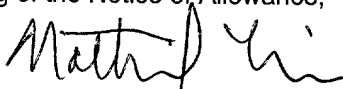
jc829 U.S. PTO  
09/713001  
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## Fee Calculation and Transmittal

### CLAIMS AS FILED

For	#Filed	#Allowed	#Extra	Rate	Fee
Total Claims	35	- 20 =	15	x \$18.00	\$270.00
Indep. Claims	5	- 3 =	2	x \$80.00	\$160.00
Multiple Dependent Claims (check if applicable) <input type="checkbox"/>					\$0.00
BASIC FEE					\$710.00
OTHER FEE (specify purpose)					\$0.00
TOTAL FILING FEE					\$1,140.00

- ☐ A check in the amount of \_\_\_\_\_ to cover the filing fee is enclosed.
- ☒ The Commissioner is hereby authorized to charge and credit Deposit Account No. 50-0271 as described below. A duplicate copy of this sheet is enclosed.
- ☒ Charge the amount of \$1,140.00 as filing fee.
- ☒ Credit any overpayment.
- ☒ Charge any additional filing fees required under 37 C.F.R. 1.16 and 1.17.
- ☐ Charge the issue fee set in 37 C.F.R. 1.18 at the mailing of the Notice of Allowance, pursuant to 37 C.F.R. 1.311(b).

  
Signature

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22927



22927

PATENT TRADEMARK OFFICE

Dated: November 17, 2000

CC:

**CERTIFICATE OF MAILING BY "EXPRESS MAIL" (37 CFR 1.10)**

Applicant(s): Walker et al.

Docket No.

00-069

Serial No.

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November 17, 2000

Examiner

Not Yet Assigned

Group Art Unit

Not Yet Assigned

Invention: SYSTEM FOR VENDING PHYSICAL AND INFORMATION ITEMS

I hereby certify that this PATENT APPLICATION, DECLARATION, ASSIGNMENT AND IDS  
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is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under  
37 CFR 1.10 in an envelope addressed to: The Assistant Commissioner for Patents, Washington, D.C. 20231 on  
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## **SYSTEM FOR VENDING PHYSICAL AND INFORMATION ITEMS**

### **CROSS-REFERENCE TO RELATED APPLICATIONS**

5           This is a continuation-in-part of co-pending provisional patent application Serial  
No. 60/226,830, filed August 22, 2000; this is also a continuation-in-part of co-pending  
provisional patent application Serial No. 60/243,153, filed October 25, 2000.

10           The entire contents of these provisional patent applications are incorporated  
herein by reference.

15           The subject matter of this application is related to the following co-pending,  
commonly-assigned patent applications: Serial No. 08/947,798, entitled "Method and  
Apparatus for Dynamically Managing Vending Machine Inventory Prices", filed  
October 10, 1997; Serial No. 09/012,163, entitled "Method and Apparatus for  
Automatically Vending a Combination of Products", filed January 22, 1998; and Serial  
No. 09/688,372, entitled "Method and Apparatus for Facilitating the Promotion of Sales  
at a Vending Machine", filed October 10, 2000. The entire contents of these  
applications are incorporated herein by reference.

### **FIELD**

25           The present invention is concerned with vending machines, and, more  
particularly, is concerned with vending machines capable of distributing both physical  
and information items.

### **BACKGROUND**

30           Vending machines are well known and are employed to store and dispense a  
wide variety of merchandise, including beverages, snacks and sundries.

Vending machines provide benefits to both customers and proprietors. For customers, there is the convenience of self-service and twenty-four hour access. Similarly, vending machines are available as sales outlets for proprietors around the clock and without direct labor costs for the sales transactions themselves.

5

However, the simplicity of the vending machine experience is not in all ways advantageous. The customer's interaction with the machine, consisting of inserting payment, selecting a product to be purchased, and receiving the product, is sometimes not congruent with the brand image of the product purchased. For many products distributed by vending machines, and particularly beverages and some snacks, the brand of the product is highly cultivated by the product distributor or manufacturer to suggest favorable images having elements such as pleasure and fun. The typical vending machine experience does little to reinforce this brand image, except, perhaps, the presence of the brand displayed on the machine and on the product itself. While the product purchased may be pleasurable and fun in itself, the process of obtaining the product from the vending machine is routine and mechanistic.

10

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It would be desirable if the experience of interacting with a vending machine were made enjoyable and entertaining to enhance and reinforce the brand messages promulgated by the distributors of products that are sometimes sold in vending machines. The present inventors have recognized that one way of enhancing the experience of interacting with the vending machine would be to expand the range of products available at the vending machine to include information items. Such information items may include audio recordings such as hit songs and/or video recordings such as music videos and may be selected to support and enhance the brand images of products sold through the vending machines.

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## **SUMMARY OF THE INVENTION**

According to an aspect of the invention, a method of operating a vending machine includes receiving a payment, receiving a product selection, offering an

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information item, receiving a destination address, dispensing a product indicated by the product selection, and transmitting the information item to a location specified by the received destination address.

5           The method may further include selecting the information item before the offering step. The selecting of the information item may be based on the received product selection. The payment may be received in the form of currency, i.e. either or both of coins and paper money. The product selection may be received via a push button on the vending machine. The offering of the information item may occur before  
10 receiving the payment or after dispensing the product or at other points in the transaction.

          The method may be performed such that change is provided only if the information item is not accepted. The information item may be an audio recording or a  
15 video recording. The product may be a beverage or a snack. The destination address may be an e-mail address.

          The offering of the information item may include displaying a notice at the vending machine. The method may include presenting the information item at the  
20 vending machine such that, if the information item is an audio recording, the presenting of the information item includes audibly reproducing the information item at the vending machine. Alternatively, if the information item is a video recording, the presenting of the information item may include displaying the information item at the vending machine.

25           The offering of the information item may include presenting a menu of information items to a customer at the vending machine as, for example, by displaying a menu of information items on a display device such as a touch screen.

The method may further include prompting a customer to enter the destination address. The offering of the information item may include stating a price for the information item.

5 According to another aspect of the invention, a vending system includes a payment device for receiving a payment, a selection device for receiving a product selection, an offer device for offering an information item, an input device for receiving a destination address, a dispensing device, responsive to the payment device, for dispensing a product indicated by the product selection, a transmitting device for  
10 transmitting the information item to a location specified by the received destination address, and a front panel on which the selection device and the offer device are installed.

The offer device may include a display which displays a notice concerning the  
15 information item. The input device may include a keyboard and/or a touch screen. The selection device may include a push button. The payment device may include a coin acceptor and/or a bill acceptor.

The method and apparatus of the present invention are advantageous in that the  
20 distribution of information items via vending machines may provide an additional source of revenue for vending machine proprietors. In addition, availability of information items through vending machines may add to the interest and enjoyment of customers who patronize vending machines, thereby leading to greater use of vending machines. Moreover, information items distributed through vending machines in  
25 accordance with the invention may be selected to enhance the brand image of physical products sold through the vending machines.

According to still another aspect of the invention, a method of operating a vending machine includes offering a first product and a first information item as a first  
30 package for a first price, offering a second product and a second information item as a second package at a second price, receiving a selection of one of the first package and



the second package, receiving a payment, receiving a destination address, dispensing  
the first product and transmitting the first information item to a location specified by  
the received destination address if the first package was selected, and dispensing the  
second product and transmitting the second information item to a location specified by  
5 the received destination address if the second package was selected.

The first price may be the same as the second price.

By assembling bundles or packages that include the physical product dispensed  
10 by the vending machine as well as an information item, it is possible to practice  
revenue management techniques. Principles of revenue management are generally  
described in the above-referenced patent application Serial No. 08/947,798. As one  
example, if a physical product is in great demand, it may be bundled with a relatively  
unpopular information item such as a relatively unpopular song, whereas unpopular  
15 physical products dispensed by the vending machines may be bundled with highly  
popular information items to promote more rapid sale of the unpopular physical  
product. In this way revenue management can be applied without explicitly changing  
the price of the product bundles. This is advantageous, since changing the price of  
products at a vending machine to reflect market conditions may risk offending the  
20 customers.

According to yet another aspect of the invention, a method of operating a  
vending machine includes receiving a payment, receiving a product selection, offering  
an information item, receiving an acceptance of the information item, dispensing a  
25 product indicated by the product selection, and transmitting the information item to a  
handheld device, such as a personal digital assistant (PDA), located in proximity to the  
vending machine.

## **BRIEF DESCRIPTION OF THE DRAWINGS**

Fig. 1 is a block diagram of a system provided in accordance with the invention;

Fig. 2 is a block diagram of a controller that is part of the system of Fig. 1;

Fig. 3 is a perspective view of an embodiment of a vending machine with which  
5 the present invention may be applied;

Fig. 4 is a block diagram of electronic and mechanical components of the  
vending machine of Fig. 3;

10 Fig. 5 is a tabular representation of an inventory database that is shown in Fig.  
4;

Fig. 6 is a tabular representation of an information item database that is shown  
in Fig. 4;

15 Fig. 7 is a tabular representation of a transaction database shown in Figs. 2 and  
4;

Fig. 8 is a tabular representation of an offer rules database shown in Fig. 4; and

20 Fig. 9 is a flow chart that illustrates a method provided in accordance with an  
aspect of the invention.

## 25 DETAILED DESCRIPTION

The following definitions shall apply in this specification and in the appended  
claims:

30 information item : a file or other unit of content stored in digital form,  
including audio recordings, video recordings, text files,

games, software, and access codes to permit access to digital files.

5        destination address        :        an indication of a location to which an information item  
may be sent; includes an e-mail address, a phone number,  
an IP address, or a mailing address.

10        product                        :        a physical object that may be dispensed by a vending  
machine.

15        vending machine                :        any automatic sales machine that allows payment to be  
exchanged for goods or services, including snack  
machines, beverage machines, automatic teller machines  
(ATMs), postage stamp dispensers, parking meters,  
20        electronic highway toll booths that deduct a toll charge  
from a motorist's pre-paid account or credit card, arcade  
games, slot machines and laundry machines.

25        Fig. 1 is a block diagram representation of a system 20 provided in accordance  
with the invention. The system 20 includes vending machines 22, a controller 24, and  
an information provider device 26. A data communications network 28 permits the  
other components of the system 20 to be in data communication with each other. The  
network 28 may include one or more other communication networks. Among these  
may be the Internet, a local area network (LAN), a wide area network (WAN), a  
30        telephone line, a telecommunications cable, a radio channel, an optical communications  
link, an infrared communications channel and a satellite communications link. The  
network 28 may employ one or more of the following communications protocols:  
TCP/IP, Ethernet and Bluetooth. Although the network 28 is illustrated as being a  
single network, it may be made up of a number of different networks for allowing  
communication between various ones of the other components of the system 20.

Although only one information provider device 26 is shown in Fig. 1, it is contemplated that more than one information provider device may be in communication simultaneously or from time to time with other components of the system. It is also contemplated to entirely omit the information provider device 26 from the system 20.

Examples of the vending machines 22 and the controller 24 will be described below. The hardware aspects of the information provider device 26 may be constituted by conventional hardware, such as a conventional server computer. Appropriate programming for the information provider device 26 will become apparent from subsequent discussion.

Fig. 2 is a block diagram showing the architecture of an illustrative controller 24. The controller 24 may be embodied, for example, as an RS6000 server, manufactured by IBM Corporation, as modified herein to execute the functions and operations of the present invention. The controller 24 includes known hardware components, such as a central processing unit (CPU) 50 in communication with each of a data storage device 52, input/output devices 54 and a communications port 56. The data storage device 52 preferably comprises an appropriate combination of magnetic, optical and/or semiconductor memory and may be constituted by one or more hard disks. The CPU 50 may be embodied as a single processor or a number of processors. The CPU 50 and the storage device 52 may each be, for example: (i) located entirely within a single computer or other computing device; or (ii) connected to each other by a remote communication medium, such as a serial port cable, telephone line or radio frequency transceiver.

The data storage device 52 stores a program 58 that controls the CPU 50 in accordance with the invention. Also stored in the data storage device 52 is a transaction database 60. The transaction database 60 may store information uploaded from the vending machines 22 and representing transactions carried out in accordance

with the invention at the vending machines 22. The transaction database 60 will be described further below.

Fig. 3 illustrates one exemplary vending machine 22 suitable for use with the present invention. Although specific exemplary vending machine 22, in the form of a beverage machine, is referred to throughout the detailed description, the present invention may be applied with any automatic sales machine that allows payment to be exchanged for goods or services. Payment can be presented through a variety of media including, but not limited to, coins, bills and other currencies, magnetic stripe cards such as credit cards, smart cards (whether pre-paid or linked to an account), and identification codes. It is also contemplated that payment for vended items may be made on-line, either before or after receiving the vended item.

As shown, vending machine 22 includes an input device 110 for receiving input from a customer indicating a product selection. Input device 110 may also be used for receiving input from an operator during stocking or maintenance of vending machine 22. Although input device 110, as illustrated, includes a set of alpha-numeric keys for providing input to vending machine 22, the input device could include a selector dial, a set of buttons associated with a respective set of item dispensers, a touch screen, or any other conventional input device. Input device 110 may also be, for example, an infrared (IR) port configured to communicate with a customer device 121 in the form of a PDA (personal digital assistant) or a cellular telephone.

Vending machine 22 may include more than one input device 110. For example, vending machine 22 may include an exterior input device 110 for receiving customer input and an interior input device (not shown) for receiving operator input. In the illustrated embodiment, input device 110 receives input data from operators and customers. Vending machine 22 may also include a recording device 126 such as a digital camera and/or a microphone.

An output device 124 may also be included. For example, in one embodiment, the output device 124 is a video display terminal, a liquid crystal display, or a touch screen. If the output device 124 is a touch screen, it will be appreciated that such device also functions as an input device.

Vending machine 22 may include additional output devices such as one or more audio speakers. Vending machine 22 may also include devices to facilitate payment, including a bill acceptor 114, a coin acceptor 112, a card reader 116 and a change dispenser 118.

Vending machine 22 dispenses products (e.g., beverage cans) at a dispenser tray 140 that is accessible via a door 138.

The output device 124 and input device 110, and other components seen in Fig. 3, are installed on a front panel 142 of the vending machine 22.

Fig. 4 is a schematic block diagram of vending machine 22 and its components. Vending machine 22 is controlled by central processing unit (CPU) 401 which may be any commonly manufactured microprocessor chip, such as the Pentium II manufactured by Intel Corporation. CPU 401 runs at a clock speed determined by clock 423 which is operatively connected to CPU 401.

CPU 401 is further operatively connected to standard computer components such as random access memory (RAM) 421, read-only memory (ROM) 419, input device(s) 433, output device(s) 435 and data storage device 403. RAM 421 may be one or more single inline memory module (SIMM) chips capable of storing a predetermined amount of data (typically measured in megabytes) and used by CPU 401 for temporary storage of processing instructions during operation of vending machine 22. ROM 419 may be at least one permanent non-erasable and non-rewritable memory chip or flash memory chip that stores initializing instructions to be used by CPU 401 during a startup

routine performed by vending machine 22. Further functions of RAM 421 and ROM 419 will be apparent to one of ordinary skill in the art.

Input device(s) 433 may be one or more of the following commonly known peripherals used for inputting data to a dispensing device or to a microprocessor based system: a parallel port, a serial port, a keypad, a push button, a touch screen, a voice recognition device, an infrared (IR) port, a wireless receiver, and the like. Input device(s) 433 preferably include an external input device for use by a purchaser and a separate internal input device, accessible only by a servicer or operator of vending machine 22 after the device has been opened, or through a network or other remote connection. In this manner, a purchaser may enter his or her selections for products through the external input device and may interact with the vending machine 22 in other ways, and a servicer may access and update data stored by vending machine 22 through the internal input device. Input device(s) 433 may specifically include a keyboard that enables a customer to select an information item to be obtained via the vending machine 22, and to enter an address to which the information item is to be delivered. Input device(s) 433 may also include a mouse, track ball, touch pad, or other pointing device that may support a graphical user interface at the vending machine 22.

Output device(s) 435 may be one or more of the following commonly known peripherals for outputting data from a microprocessor: a parallel or serial port, a cellular modem or a regular modem, a printer, a monitor, a touch screen, a speaker, an LED or LCD display, a voice synthesizer, and/or a combination of any of these devices. Output device(s) 435 preferably include an external output device for displaying or broadcasting messages to a purchaser and a separate internal output device, accessible only by a servicer or operator of vending machine 22 after the device has been opened, or through a network or other remote connection. In this manner, a servicer may receive data stored by vending machine 22 through the internal output device. Further applicable output devices will be apparent to one of ordinary skill in the art. In one preferred embodiment of the vending machine 22, a speaker and/or a display screen are provided to permit the vending machine to audibly and/or visibly present one or more

information items that are offered by the vending machine 22. Either the entire information item may be presented, as in playing an entire song, or a sample may be provided.

5           Additionally, input device 433 and output device 435 may be one device, such as a communications port or a touch screen, that can both receive and transmit data. One purpose of the output device 435 may be to present a menu of information items that may be obtained by the customer through the vending machine 22. A touch screen, mouse or other pointing device may be included to permit the customer to select one of  
10   the information items presented in the menu.

          The CPU 401 is also in communication with a data storage device 403. The data storage device 403 comprises an appropriate combination of magnetic, optical and/or semiconductor memory, and may include, for example, random access memory,  
15   read-only memory, a compact disk and/or a hard disk. The data storage device 403 stores a program 415 for controlling the CPU 401. The CPU 401 performs instructions of the program 415, and thereby operates in accordance with the present invention, and particularly in accordance with the methods described in detail herein. The program  
20   415 may be stored in a compressed, uncompiled and/or encrypted format. The program 415 furthermore includes program elements that may be necessary, such as an operating system, a database management system and "device drivers" for allowing the CPU 401 to interface with computer peripheral devices. Appropriate program elements are known to those skilled in the art and need not be described in detail herein.

25           According to an embodiment of the present invention, the instructions of the program 415 may be read into a main memory from another computer-readable medium, such as from a ROM to RAM. Execution of sequences of the instructions in program 415 causes CPU 401 to perform the process steps described herein. In  
30   alternative embodiments hard-wired circuitry may be used in place of, or in combination with, software instructions for implementation of the processes of the



present invention. Thus, embodiments of the present invention are not limited to any specific combination of hardware and software.

The storage device also stores an inventory database 409 for keeping track of the inventory of products present in the vending machine and a transaction database 413 for recording transactions carried out by the vending machine. Also stored in the storage device 403 are an information item database 412 for storing data concerning information items that may be offered via the vending machine 22, and an offer rules database 414 for storing data that indicates circumstances under which particular ones of the information items are to be offered. The databases 409, 412, 413 and 414 will be described in further detail below.

CPU 401 is further operatively connected to timer 417 which can be set, reset and read by CPU 401 to measure the passage of time. Alternatively, CPU 401 may use signals generated by clock 423 to measure the passage of time in place of timer 417, as will be apparent to one of ordinary skill in the art.

CPU 401 is further operatively connected to monitor and operate currency storage 425, coin acceptor 427, card reader 428, bill acceptor 429, change dispenser 431, item dispenser(s) 437, and detector 439. Currency storage 425 is equipped to store both physical currency and electronic forms of currency, such as e-cash or credits from a debit card, credit card or smart card, received by vending machine 22. Coin acceptor 427 accepts and determines an amount of money received from coins deposited into vending machine 22. Card reader 428 receives electronic currency from a card, such as a smart card, debit card or credit card and/or determines account information for an account owned by the card owner. The account information is stored and used to apply a charge against the account for a product selected and dispensed by vending machine 22, or for an information item to be obtained through vending machine 22. Card reader 428 may also be used to read information from "frequent shopper cards" issued to customers. Each frequent shopper card may uniquely identify a particular customer

and may be linked to a customer account or customer profile accessible by vending machines in the network.

Bill validator 429 accepts and determines an amount of money received from  
5 monetary bills deposited into vending machine 22.

The vending machine 22 may also be arranged to receive payment via a customer's cellular phone. According to this known technique, the customer uses his or her cellular phone to initiate a telephone call to the vending machine. The customer  
10 then selects a product or products to be dispensed (and/or one or more information items), and the cost of the dispensed product and/or information item is charged to the customer's cellular phone account.

Change dispenser 431 dispenses any change that is due to a purchaser who  
15 deposits money into coin acceptor 427, card reader 428 or bill acceptor 429. The amount of change to be dispensed is determined by CPU 401 under control of the program 415. In a process not shown, but apparent to one of ordinary skill in the art, CPU 401 determines an amount of money that a purchaser has deposited, recognizes a product and/or information item that the purchaser has selected, and calculates the  
20 difference between the amount of money deposited and the amount to be charged for the product and/or information item. The difference may be dispensed to the purchaser through change dispenser 431 or otherwise credited to the purchaser or to a designated recipient. Change dispenser 431 may be operatively connected to currency storage 425 to dispense change from that device.

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Detector 439 is a device that sends a signal to CPU 401 when a purchaser is detected near vending machine 22. Detector 439 may be used by vending machine 22 to initiate demand monitoring and suggestive sell functions as disclosed and discussed in commonly-assigned U.S. patent application Serial No. 09/164,670, entitled "Method  
30 and Apparatus for Collecting and Applying Vending Machine Demand Information" (incorporated herein by reference). Detector 439 may be any one of the following

types of devices: a motion detector, an infrared detector, an acoustic signal detector, a pressure detector mounted on the floor in front of vending machine 22 or any other device that may detect a presence of a customer when he or she is in proximity of vending machine 22 and which outputs a signal indicative of the presence of the purchaser. The detector 439 may also be operative to initiate playback or display of one or more information items available for acquisition via the vending machine 22. Detector 439 may also be used to initiate presentation of offers of information items.

CPU 401 is further in communication with communications port 441.

Communications port 441 permits CPU 401, and hence vending machine 22, to engage in data communications with controller 24 and other components of the system 20.

Fig. 5 shows a table 500 that represents inventory database 409 that may be stored in a respective vending machine 22. Table 500 includes a column 502 in which the various products dispensed by the vending machine are listed, a column 504 which lists the respective quantities of the products on hand in the vending machine, and column 506, which stores data indicative of the prices of the respective products.

Fig. 6 shows a table 600 that represents an information item database 412 that may be stored in a respective vending machine 22. Column 602 in table 600 lists respective identifiers for the information items that may be distributed via the vending machine 22. Column 604 contains descriptions of the respective information items. Column 606 lists the providers of the information items. Data stored in column 608 indicates what quantity of each information item has been distributed via the vending machine 22. In column 610, the prices of the information items are listed. It will be noted that, in some cases, the "price" for an information item may be a requirement that the user perform an action.

Fig. 7 shows a table 700 that represents a transaction database 413 that may be stored in a respective vending machine 22. A similar database comprising data for all

of the vending machines in the system may be stored as database 60 in the controller

24. Each record in the table 700 contains data generated during a single transaction.

The table 700 includes a column 702 for storing transaction identifiers.

5 Transaction identifiers may be unique codes generated by the vending machine and associated with each transaction. Also included in table 700 is a column 704 for storing information indicative of the date and time at which the transaction took place.

Column 706 stores information that indicates the product or products sold during the transaction. Column 708 stores information item identifiers which identify the  
10 information item, if any, that was distributed in connection with the respective transaction. It is contemplated that in some transactions more than one information item may be distributed, in which case more than one information item identifier would be stored in the entry under column 708 for the respective transaction.

15 Column 710 in table 700 stores data that indicates the total price charged for the transaction. Column 712 in table 700 contains listings of customer identifiers, if available, for the customers who carried out the transactions. Customer identifiers may be available if the customer paid by credit card or used a frequent shopper card or the like to identify themselves.

20 Column 714 in table 700 lists destination addresses that have been input by the customer to indicate a destination for delivery of the information item distributed as part of the respective transaction.

25 Fig. 8 shows a table 800 that represents an offer rules database 414 that may be stored in a respective vending machine 22. Column 802 in table 800 lists conditions upon which offers of information items are to be made by the vending machine. Column 804 lists the corresponding information items to be offered upon the occurrence of the conditions listed in column 802. Among the conditions that may lead  
30 to offering of a particular information item are customer selection of a particular product, detection of a customer at the vending machine, the customer using a credit

card to pay for the transaction, or a certain amount of change being due to the customer as a result of the transaction.

Fig. 9 is a flow chart that illustrates a process for handling a transaction at a vending machine in accordance with the invention.

According to a first step 902 in the process of Fig. 9, the vending machine receives a payment. This may occur according to a number of known techniques, including receiving a coin or coins via coin acceptor 427, or receiving an item of paper currency via bill acceptor 429. As an alternative, a credit card account number may be inputted into the vending machine via a card reader 428 and the corresponding account charged. As still another alternative, a PDA or a transponder may be used to transmit an account number to the vending machine, and the corresponding account may then be charged for the price of the transaction.

It is also contemplated that the customer may call the vending machine with his or her cellular telephone with the amount of the transaction to be charged to the customer's cellular telephone account. Furthermore, payment to the vending machine may be arranged by the customer ahead of time via the Internet.

Next, at step 904, the vending machine receives from the customer an indication of a product selection. This may be done in a number of ways, including the customer actuating a conventional push button. It is also contemplated that the product could be selected via a cellular telephone, or that the customer may leave it up to the vending machine to select the product. When the vending machine only vends a single product, the submission of payment may indicate a product selection.

Next, at step 906, the vending machine determines an information item to offer to the customer and a price at which the information item is to be offered.

The information item to be offered may be selected based on the product selected by the customer. For example, the selection of a certain product by the customer may trigger the vending machine to offer to the customer a certain information item such as a certain piece of recorded music, at a given price.

5 Alternatively, an information item may have been offered even before payment was received and the product selected. For example, the vending machine may continuously display a notice indicating that a certain information item such as a certain song is available through the vending machine. The notice may indicate that if a certain product is selected for vending, an information item is available as part of a  
10 package at a package price with the product in question. The vending machine may display several options, each of which is a package of a product to be vended through the machine and an associated information item.

The types of information items that may be distributed via the vending  
15 machines may include, as noted before, songs or other musical selections or other audio recordings, video recordings such as music videos, movies or television programs, software programs including game software, cheat codes for games, text files including so-called "e-books", news accounts in text form, and unlock codes that may be used to gain access to information from a website, for example.

20 The determination of which of a number of information items to offer may be made in a number of ways. For example, as noted before, the determination of an information item to offer may be based on the product selected by the customer. Alternatively, the information item to be offered may be dependent on the amount of  
25 payment provided by the customer or based on the amount of change due to the customer. The selection of an information item to offer may also be based on the manner in which the payment is provided. A number of information items may be offered to the customer sequentially or simultaneously in the form of a menu and the customer may be permitted to select one of the information items from the menu.

The customer may also be permitted to request a particular information item of interest and the vending machine may then seek to obtain that information item via a process like that provided by services such as Napster.

5 Step 908 indicates that the offer of the information item is presented to the customer. This may be done in various ways and at various times during the process. For example, the offer may be made continuously by displaying a notice via display 124 of the vending machine. This may occur before, during or after receipt of payment and/or receipt of the customer's product selection.

10 Offering an information item may also involve determining a price at which an information item should be offered. The price may have previously been assigned by the party that provides the information item and may be included in the above-described information item database. Alternatively, there may be a flat price for all  
15 information items.

Another possibility is that the information item pricing may be variable depending on factors such as the amount of change due to the customer. For example, if the customer deposits a dollar and selects a product that costs seventy-five cents, the  
20 vending machine may display a notice that states that a particular song may be obtained for the change due, i.e. twenty-five cents. If the product selected costs sixty cents, then the notice might have indicated that the price of the information item was forty cents. In either case, if the customer indicates that he or she desires to obtain the information item, then no change is provided to the customer.

25 It is also contemplated that particular information items may be paired with particular products to promote the sales of less popular products. Thus, for example, a product that is selling well may be paired with a rather obscure information item, or a product that is not selling well may be paired with an information item that is very  
30 popular. The popularity of an information item may be determined by publicly available information such as sales chart information.

As indicated at step 910, the vending machine receives from the customer data that represents a destination address to which the information item is to be sent. The destination address may take the form of an e-mail address, an Internet website address, a telephone number or a postal service mailing address. The data indicative of the destination address may be inputted via an input device on the vending machine such as a touch screen or a keyboard. Alternatively, the destination address may be inputted to the vending machine via a PDA 121 (Fig. 3) or some other customer device.

Finally, step 912 indicates that the vending machine arranges to transmit the information item to the destination address received at step 910. For example, the vending machine may send a message to the controller 24 indicating the information item selected by the customer and the inputted destination address. The controller 24 may then send a message to information provider device 26 with the same information. Assuming that the information provider device 26 stores the relevant information item, a data file corresponding to the information item is sent by the information provider device 26 to the indicated destination address. As other alternatives, the data file corresponding to the information item may be stored at the controller 24 and dispatched from the controller 24 to the destination address in response to a message from the vending machine, or the vending machine itself may store the information item and may send the information item directly to the destination address.

The following is an example of one way in which the present invention may be practiced:

A vending machine continuously plays a hit song via a speaker. A customer approaches the vending machine and views a notice on a touch screen that states: "You can have this great song downloaded to your home computer for just 25 cents". The customer inserts a dollar bill into a bill acceptor and selects a soda by pushing a button. The soda is dispensed. The customer presses an "accept" button on the touch screen and the touch screen prompts the customer to enter the customer's e-mail address. The



customer actuates alpha-numeric areas on the touch screen to enter his e-mail address. Because the price of the soda is 75 cents, no change is dispensed. The vending machine sends an e-mail message to the entered e-mail address with the song as an audio file attachment to the e-mail message.

5

Although the preceding example provides for the information item to be specified in an offer, it is also contemplated that an undetermined information item may be offered. For example, an offer may propose to download next week's number one hit to the customer's home computer at a time in the future after the number one hit has been determined.

10

The previous example contemplates a separate charge for the information item. Alternatively, the information item may be provided free to the customer upon the customer selecting a particular product or upon selecting any product available for purchase through the vending machine.

15

In embodiments of the invention that have been described above, the system transmits an information item to an address that has been inputted into a vending machine by the customer. Alternatively, if the customer has a PDA, the vending machine may be arranged to transmit the information item directly to the PDA upon the customer indicating acceptance of the information item.

20

With the methods and apparatus of the present invention, the experience of patronizing a vending machine can be enriched by allowing the customer to obtain information items such as music recordings or music videos to be distributed to the customer's home computer. Thus, some of the enjoyment of visiting a music store can be incorporated in a visit to a vending machine. This may enhance the customer's perception of the vending experience and of the product distributed through the vending machine.

25

30

The methods described herein as sequences of steps are not limited to being performed in the order set forth herein, but may be performed in any order that is practical.

- 5           Although the present invention has been described with respect to preferred embodiments thereof, those skilled in the art will note that various substitutions, modifications and variations may be made with respect to the embodiments described herein without departing from the spirit and scope of the present invention.

What is claimed is:

- 1 1. A method of operating a vending machine, comprising:  
2 receiving a payment;  
3 receiving a product selection;  
4 offering an information item;  
5 receiving a destination address;  
6 dispensing a product indicated by the product selection; and  
7 transmitting the information item to a location specified by the received  
8 destination address.
- 1 2. The method of claim 1, further comprising selecting the information item before  
2 said offering step.
- 1 3. The method of claim 2, wherein said selecting the information item is based on  
2 the received product selection.
- 1 4. The method of claim 1, wherein said payment is received in the form of  
2 currency.
- 1 5. The method of claim 1, wherein said product selection is received via a push  
2 button on the vending machine.
- 1 6. The method of claim 1, wherein said offering occurs before said receiving the  
2 payment.
- 1 7. The method of claim 1, wherein said offering occurs after said dispensing.
- 1 8. The method of claim 1, further comprising providing change only if said  
2 information item is not accepted.

- 1 9. The method of claim 1, wherein the information item is a video recording.
- 1 10. The method of claim 1, wherein the information item is an audio recording.
- 1 11. The method of claim 1, wherein the product is one of a beverage and a snack.
- 1 12. The method of claim 1, wherein the destination address is an e-mail address.
- 1 13. The method of claim 1, wherein said offering includes displaying a notice at  
2 said vending machine.
- 1 14. The method of claim 1, further comprising presenting said information item at  
2 said vending machine.
- 1 15. The method of claim 14, wherein said information item is an audio recording  
2 and said presenting includes audibly reproducing said information item at said vending  
3 machine.
- 1 16. The method of claim 14, wherein said information item is a video recording and  
2 said presenting includes displaying said information item at said vending machine.
- 1 17. The method of claim 1, wherein said offering includes presenting a menu of  
2 information items to a customer at the vending machine.
- 1 18. The method of claim 17, wherein said presenting includes displaying said menu  
2 of information items on a display device.
- 1 19. The method of claim 18, wherein said display device is a touch screen.
- 1 20. The method of claim 1, further comprising prompting a customer to enter the  
2 destination address.

21. The method of claim 1, wherein said offering includes stating a price for the information item.

22. A method of operating a vending machine, comprising:  
offering a first product and a first information item as a first package for a first price;  
offering a second product and a second information item as a second package for a second price;  
receiving a selection of one of said first package and said second package;  
receiving a payment;  
receiving a destination address;  
dispensing the first product and transmitting the first information item to a location specified by the received destination address if the first package was selected;  
and  
dispensing the second product and transmitting the second information item to a location specified by the received destination address if the second package was selected.

23. The method of claim 22, wherein the first price is the same as the second price.

24. The method of claim 22, wherein the first and second products are beverages.

25. The method of claim 22, wherein the first and second products are snacks.

26. The method of claim 22, wherein the first and second information items are audio recordings.

27. The method of claim 22, wherein the first and second information items are video recordings.

28. A vending system, comprising:

2 payment means for receiving a payment;  
3 selection means for receiving a product selection;  
4 offer means for offering an information item;  
5 input means for receiving a destination address;  
6 dispensing means, responsive to the payment means and the selection means,  
7 for dispensing a product indicated by the product selection;  
8 transmitting means for transmitting the information item to a location specified  
9 by the received destination address; and  
10 a front panel on which the selection means and the offer means are installed.

1 29. The vending system of claim 28, wherein the offer means includes a display  
2 which displays a notice concerning the information item.

1 30. The vending system of claim 28, wherein the input means includes a keyboard.

1 31. The vending system of claim 28, wherein the input means includes a touch  
2 screen.

1 32. The vending system of claim 28, wherein the selection means includes a push  
2 button.

1 33. The vending system of claim 28, wherein the payment means includes at least  
2 one of a coin acceptor and a bill acceptor.

1 34. A method of operating a vending machine, comprising:  
2 receiving a payment;  
3 receiving a product selection;  
4 offering an information item;  
5 receiving an acceptance of the information item;  
6 dispensing a product indicated by the product selection; and

transmitting the information item to a handheld device located in proximity to  
the vending machine.

35. A vending system, comprising:

- payment means for receiving a payment;
- selection means for receiving a product selection;
- offer means for offering an information item;
- input means for receiving an acceptance of the information item;
- dispensing means, responsive to the payment means and the selection means,  
for dispensing a product indicated by the product selection;
- transmitting means, responsive to the input means, for transmitting the  
information item to a hand-held device in proximity to the vending machine; and
- a front panel on which the selection means and the offer means are installed.

### **ABSTRACT**

A vending machine handles a purchase transaction by receiving a payment,  
receiving a product selection from the customer, and dispensing the product indicated  
5 by the product selection. As part of the same transaction, the vending machine offers  
an information item such as an audio recording or a video recording. The vending  
machine also receives from the customer a destination address, which may be an e-mail  
address. The vending machine or a system of which it is part transmits the information  
item to the received destination address.



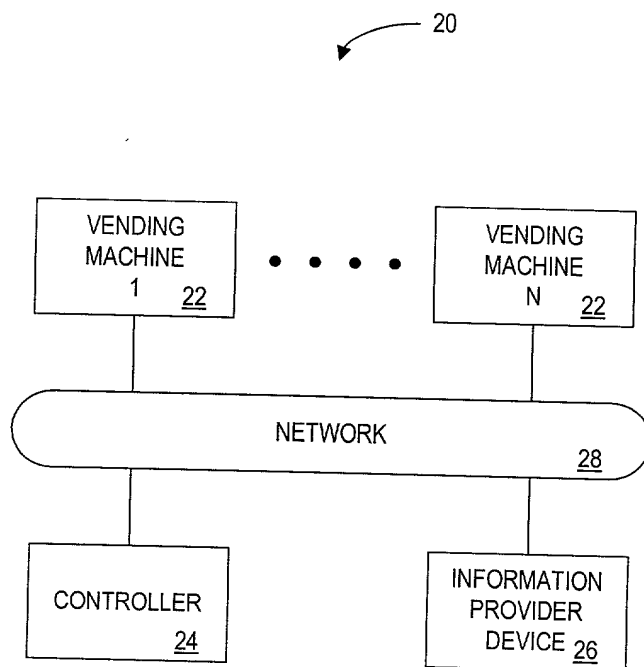


FIG. 1

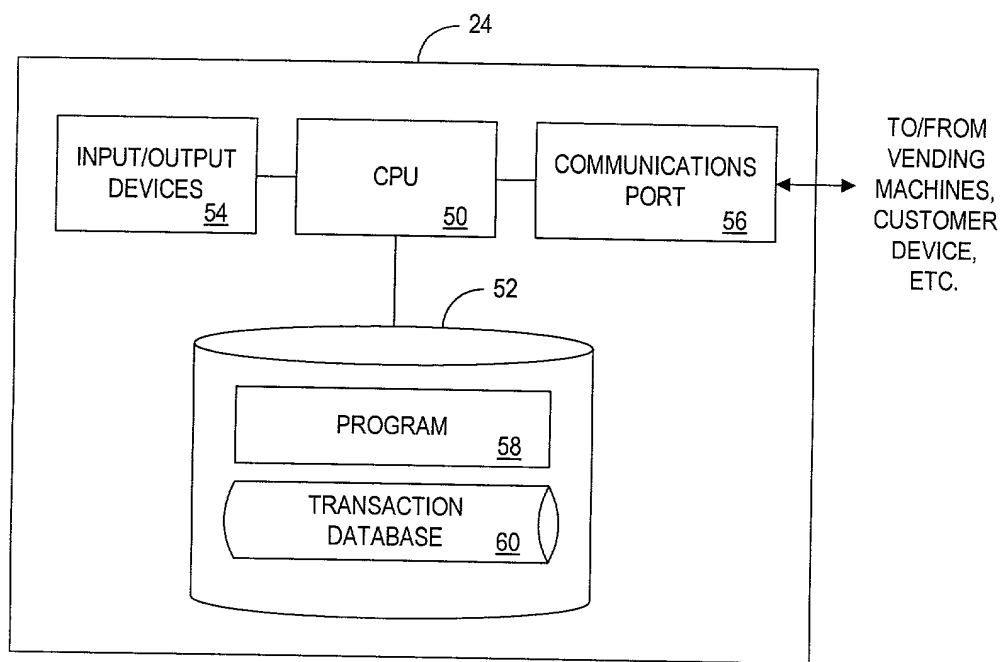


FIG. 2

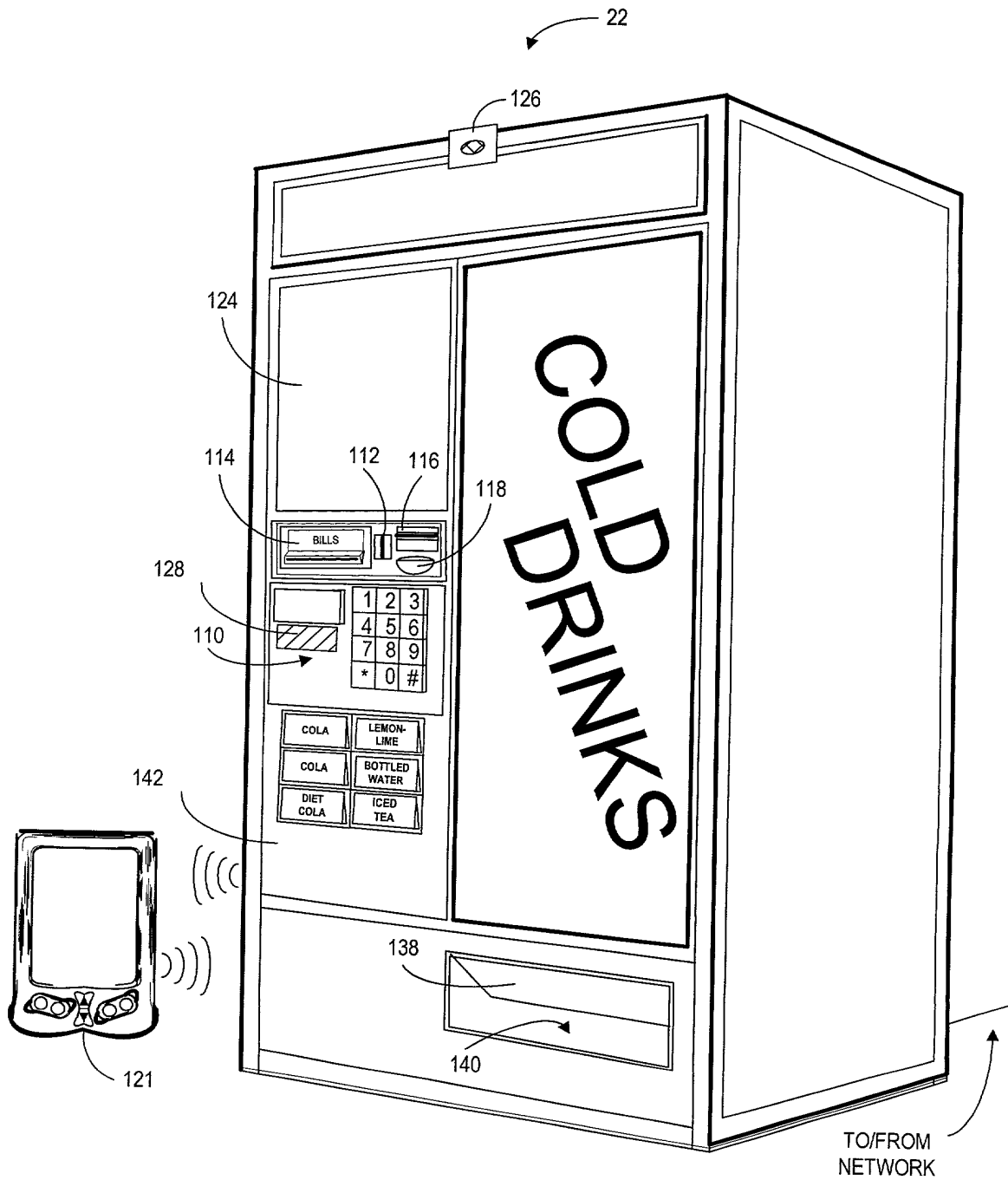


FIG. 3

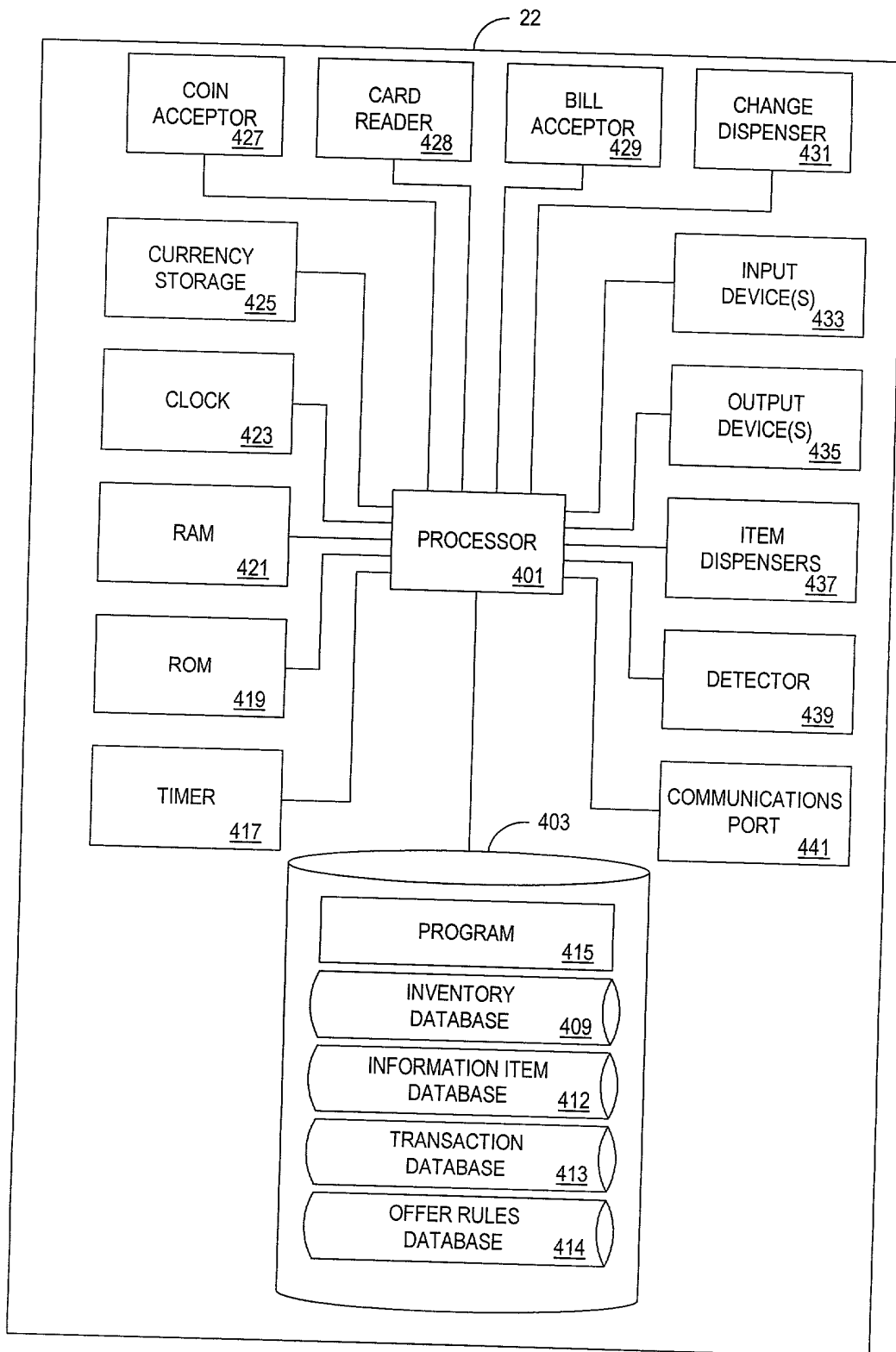


FIG. 4

[illegible]FIG. 5

600

INFORMATION ITEM IDENTIFIER 602	INFORMATION ITEM DESCRIPTION 604	INFORMATION PROVIDER 606	NUMBER DISPENSED 608	PRICE 610
IN-0005	"BEOWULF AND GRENDL" MP3	OLD ENGLISH ENTERTAINMENT	10	\$0.75
IN-0008	"ROSENCRANZ'S REVENGE" TXT	REVISIONIST SHAKESPEARE CO.	8	\$0.50
IN-0013	2 MONTH SUPPLY OF DIGI-PET FOOD	DIGITAL PETWARES	12	GET 5 PEOPLE TO GET A DIGITAL PET
IN-0042	CHEAT CODE FOR "DRAGONQUEST"	GAMESOFT	6	BUY 3 DRINKS FROM VENDING MACHINE
IN-0126	TRAFFIC REPORT	TRAFFIC COP, INC.	14	\$0.25

FIG. 6

700

VENDING MACHINE IDENTIFIER: V-002						
TRANSACTION IDENTIFIER 702	DATE/TIME 704	PRODUCT VENDED 706	INFORMATION ITEM IDENTIFIER 708	TOTAL PRICE 710	CUSTOMER IDENTIFIER 712	DESTINATION ADDRESS 714
T-001	9/10/2002 14:34	COLA	IN-0005	\$1.50	--	FROGG@POND.COM//
T-002	9/10/2002 14:42	BOTTLED WATER	--	\$1.00	--	--
T-003	9/10/2002 16:12	ICED TEA	IN-0126	\$0.85	C-532	(203) 325-4433
T-004	9/10/2002 16:31	COLA	IN-0008	\$1.00	--	115.421.514.890
T-005	9/10/2002 17:01	DIET COLA	--	\$0.75	C-254	--

FIG. 7

800

CONDITION 802	ACTION 804
CUSTOMER SELECTS LEMON-LIME SODA	OFFER IN-0126
CUSTOMER IS AT V-001	OFFER IN-0013
CUSTOMER USES CREDIT CARD	OFFER IN-0008
CHANGE DUE CUSTOMER EXCEEDS OR EQUALS \$0.50	OFFER IN-005

FIG. 8



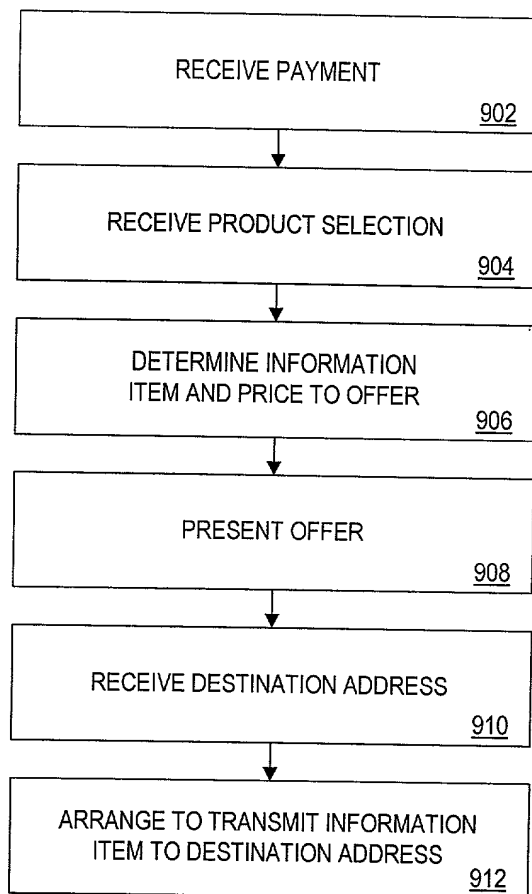


FIG. 9

# DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: **SYSTEM FOR VENDING PHYSICAL AND INFORMATION ITEMS**, the specification of which

☒ is attached hereto.

☐ was filed on \_\_\_\_\_ as United States Application No. or PCT International Application Number \_\_\_\_\_ and was amended on \_\_\_\_\_ (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in 37 C.F.R. Section 1.56.

I hereby claim foreign priority benefits under 35 U.S.C. Section 119(a)-(d) or Section 365(b) of any foreign application(s) for patent or inventor's certificate, or Section 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate or PCT International application having a filing date before that of the application on which priority is claimed.

Prior Foreign Applications(s)

Priority  
Not Claimed

☐

\_\_\_\_\_  
(Number)

\_\_\_\_\_  
(Country)

\_\_\_\_\_  
(Date/Month/Year Filed)

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(Number)

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(Country)

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(Date/Month/Year Filed)

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\_\_\_\_\_  
(Number)

\_\_\_\_\_  
(Country)

\_\_\_\_\_  
(Date/Month/Year Filed)

I hereby claim the benefit under 35 U.S.C. Section 119(e) of any United States provisional application(s) below:

60/226,830	8/22/00
_____ (Application Serial No.)	_____ (Filing Date)

60/243,153	10/25/00
_____ (Application Serial No.)	_____ (Filing Date)

_____ (Application Serial No.)	_____ (Filing Date)
-----------------------------------	------------------------

I hereby claim the benefit under 35 U. S. C. Section 120 of any United States application(s), or Sections 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. Section 112, I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37 C.F.R., or PCT International filing date of this application:

_____ (Application Serial No.)	_____ (Filing Date)	_____ (Status) (patented, pending, abandoned)
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_____ (Application Serial No.)	_____ (Filing Date)	_____ (Status) (patented, pending, abandoned)
-----------------------------------	------------------------	---

_____ (Application Serial No.)	_____ (Filing Date)	_____ (Status) (patented, pending, abandoned)
-----------------------------------	------------------------	---

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States

Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.


POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith:

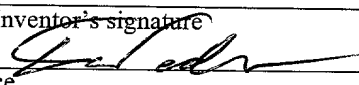


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Third Inventor's signature	Date:
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Fourth Inventor's signature	Date:
Residence	
Citizenship	
Post Office Address	

Full name of Fifth Inventor	
Fifth Inventor's signature	Date:
Residence	
Citizenship	
Post Office Address	